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# Foot-and-Mouth Disease:

A Foreign Threat to U.S. Livestock



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# Foot-and-Mouth Disease

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## A Foreign Threat to U.S. Livestock

Foot-and-mouth disease (FMD) is a severe, highly communicable viral disease of cattle and swine. It also affects sheep, goats, deer, and other ruminants (cloven-hoofed, cud-chewing quadrupeds). FMD generally does not affect humans.

This country has been free of FMD since 1929, when the last of nine U.S. outbreaks was eradicated.

The disease is characterized by fever and by blisterlike lesions in the mouth and on the teats and feet. Many affected animals recover, but the disease leaves them debilitated, and it causes losses in the production of meat and milk.

Because it spreads widely and rapidly and because it has grave economic as well as physical consequences, FMD is one of the animal diseases that livestock owners dread most.



Drooling and smacking of the lips are early signs of FMD.



Recently ruptured vesicle (blister) above the dental pad.

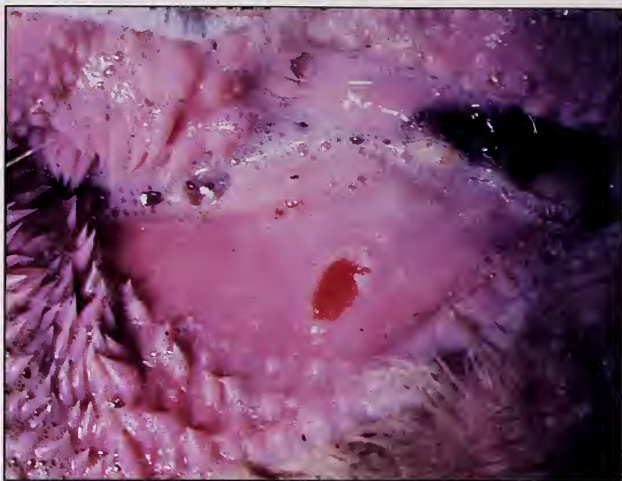


Tongue vesicles that have ruptured and begun to slough.

## Cause

The disease is caused by a microscopic disease-producing virus. The virus has a remarkable capacity for remaining viable in carcasses, in animal byproducts, in water, in such materials as straw and bedding, and even in pastures.

There are at least seven separate types and many subtypes of the FMD virus. Animals may be affected by one or more of these at the same time. Recovered animals may suffer repeated attacks of the disease because immunity to one type does not protect an animal against the others.



Ruptured vesicle producing erosive lesion of the gum.



Newly formed vesicle (small white area) on a hog's snout.

## Signs

Vesicles (blisters) in the mouth, on the tongue and lips, on the teats, or between the toes—and the resulting slobbering or lameness—are the best known signs of the disease. Often blisters may not be observed until they have ruptured.

Some of these other signs may appear in affected animals during an FMD outbreak:

- Temperatures rise markedly—especially in young animals—then usually fall in about 48 hours.
- Ruptured vesicles discharge either clear or cloudy fluid and leave raw, eroded areas surrounded by ragged fragments of loose tissue.





Ruptured vesicle on the dental pad.



A ruptured vesicle with blanching of tissue in the interdigital space.

- Sticky, foamy, stringy saliva is produced.
- Consumption of feed is reduced because of painful tongue and mouth lesions.
- Lameness with reluctance to move is often observed.
- Abortions often occur.
- Milk flow of infected cows drops abruptly.
- Conception rates may be low.

Meat animals do not normally regain lost flesh for many months. Recovered cows seldom produce milk at their former rates. Death from FMD occurs most often in newborn animals and with variable frequency in older animals.



Unruptured teat lesion on a cow.



Ruptured teat lesion with necrosis.

## **Where Does FMD Occur?**

The disease is widespread. Various types of the FMD virus have been identified in Africa, South America, Asia, and Europe.

North America, Central America, Australia, New Zealand, Japan, Chile, and some countries in Europe are considered free of FMD because governments there have conducted effective programs to prevent its introduction or to eradicate it.



## **Confusion With Other Diseases**

FMD can be confused with several similar—but less harmful—domestic diseases, such as vesicular stomatitis, bovine virus diarrhea, and foot rot. Whenever blisters or other typical signs are observed and reported, tests must be made to determine whether the disease causing them is FMD.

## **How It Spreads**

FMD can be spread by animals, people, or materials that bring the virus into physical contact with susceptible animals. An outbreak may occur when:

- People wearing contaminated clothes or footwear or using contaminated equipment pass the virus to susceptible animals.
- Animals carrying the virus are introduced into susceptible herds.
- Contaminated facilities are used to hold susceptible animals.
- Contaminated vehicles are used to move susceptible animals.
- Raw or improperly cooked garbage containing infected meat or animal products is fed to susceptible animals.
- Susceptible animals are exposed to materials such as hay, feedstuffs, hides, or biologics contaminated with the virus.
- Susceptible animals drink contaminated water.
- A susceptible cow is inseminated with material from an infected bull.

## **Prevention and Control**

FMD is one of the most difficult animal infections to control. Because the disease occurs in many parts of the world, there is always a chance of its accidental introduction into the United States.

Animals and animal byproducts from areas known to be infected are prohibited entry into this country. A single infected animal or one contaminated sausage could carry the virus to American livestock.

Animals in this country are highly susceptible to FMD. They have not developed immunity to it because FMD has not occurred here since 1929 and because U.S. veterinarians do not vaccinate against it. If an outbreak were to occur in the United States, this disease could spread rapidly to all sections of the country by routine livestock movements unless detected early and eradicated immediately.

If FMD were to spread unchecked, the economic impact could reach billions of dollars in the first year. The Nation's deer and other wildlife populations could also rapidly become infected and remain a reservoir of infection.

## **What You Can Do**

You can back up the Nation's efforts against FMD by:

- Watching for slobbering, lameness, and other signs of FMD in your herd.
- Immediately reporting any unusual or suspicious signs of disease to your veterinarian, to State or Federal animal disease-control officials, or to your county agricultural agent.

If foot-and-mouth disease should appear in your animals, your report will set in motion an effective State and Federal eradication program.

Your participation is vital. Both the early recognition of disease signs and the prompt notification of officials are essential if eradication is to be carried out successfully. Your warning may prevent FMD from becoming established in the United States, or—if it does spread—reduce the time and money needed to wipe it out.

This is one of a series of publications designed to acquaint American livestock producers with foreign animal diseases and the steps to take if an outbreak is suspected. For more information about foreign animal diseases, contact your local veterinarian, your county agent, or State or Federal animal disease-control officials.

Photographs provided by the Plum Island Animal Disease Center, Animal and Plant Health Inspection Service, U.S. Department of Agriculture.

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